A Global Vision for Academic Scholarship and Professional Development

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Abstract

The global academic system has been remarkably successful in providing high quality education and creating new knowledge. The growth of research-focused institutions around the world and the associated increase in publications and institutional pressures to publish create a danger of shifting academia away from its philosophical moorings. This presentation reflects on possible ways of adjusting priorities and incentives to respond to these pressures. Pursuing excellence in teaching, scholarship and research requires continuous learning and reflection, proper motivations, effective communication, integrity, networking, and two-way engagement with the academic community. We discuss the evaluation of funding proposals and faculty evaluation and institutional rewards, and the holistic priorities of educational institutions, looking into the near future, with the goal of maintaining the health of the academic enterprise.

Index Terms: Academic research funding, Excellence in education, Academic publication, Academic scholarship, Evaluation metrics for academics

Biography

Krishnasamy T. Selvan received his B.E. (Honours) degree from A.C. College of Engineering & Technology, Karaikudi, in 1987, M.S. degree from Birla Institute of Technology & Science, Pilani, in 1996, and Ph.D. degree from Jadavpur University, Kolkata, in 2002. He received a Post Graduate Certificate in Higher Education from the University of Nottingham, UK, in 2007.

Selvan has been a Professor in the Department of Electronics & Communication Engineering, SSN College of Engineering, India, since June 2012. From early 2005 to mid-2012, he was with the Department of Electrical & Electronic Engineering, University of Nottingham Malaysia Campus. He also held the positions of Assistant Director of Teaching and Learning and Deputy Director of Studies. During August-September 2009, he was a Visiting Scholar at the University of Nottingham, UK. From early 1988 to early 2005, he was with SAMEER – Centre for Electromagnetics, a government of India's microwave research institution, in Chennai, India. During 1994–1997, he was the Principal Investigator of a collaborative research programme that SAMEER had with the National Institute of Standards and Technology, USA. Later he was the Project Manager of some successfully completed antenna development projects. From early 1988 to mid-1990, on deputation from SAMEER, he worked at IIT Kanpur on a radar clutter measurement project. During February to April 1994, he held an UNDP Fellowship at RFI Industries, Australia.

Selvan's professional interests include electromagnetics and antenna theory, design and measurements. He is also keen about electromagnetic education, in particular, and higher education, in general. In these areas, he has authored or coauthored a number of journal papers and conference papers and talks. He is an editor for the online journal FERMAT, and was earlier on the editorial boards of the International Journal of RF and Microwave Computer-Aided Engineering and the International Journal of Antennas and Propagation. He founded the Madras Chapter of IEEE Antennas and Propagation Society in 2013. He has been involved in several major conferences and workshops, both as a speaker and as an organizer.

Selvan was a member of the Education Committee of the IEEE Antennas and Propagation Society from 2006 to 2018. He took major lead in proposing, formulating and administering the IEEE AP-S Region 10 Distinguished Speaker programme for promoting EM education. He was also a Distinguished Speaker for 2015-16 under this programme. On an invitation from IEEE AP-S Taiwan Chapter, he visited National Taiwan University in July 2016 and gave a talk on his EM education -related initiatives in South India

Selvan is a Senior Member of IEEE.

Biography

Karl F. Warnick received the B.S. degree (*magna cum laude*) with University Honors and the Ph.D. degree from Brigham Young University (BYU), Provo, UT, in 1994 and 1997, respectively. From 1998 to 2000, he was a Postdoctoral Research Associate and Visiting Assistant Professor in the Center for Computational Electromagnetics at the University of Illinois at Urbana-Champaign. Since 2000, he has been a faculty member in the Department of Electrical and Computer Engineering at BYU, where he is currently a Professor.

In 2005 and 2007, he was a Visiting Professor at the Technische Universität München, Germany. Dr. Warnick has published many scientific articles and conference papers on electromagnetic theory, numerical methods, remote sensing, antenna applications, phased arrays, biomedical devices, and inverse scattering, and is the author of the books *Problem Solving in Electromagnetics, Microwave Circuits, and Antenna Design for Communications Engineering* (Artech House, 2006) with Peter Russer, *Numerical Analysis for Electromagnetic Integral Equations* (Artech House, 2008), and Numerical Methods for Engineering: An Introduction Using MATLAB and Computational Electromagnetics Examples (Scitech, 2010).

Dr. Warnick is a Fellow of the IEEE and is a recipient of a National Science Foundation Graduate Research Fellowship, Outstanding Faculty Member award for Electrical and Computer Engineering, the BYU Young Scholar Award, the Ira A. Fulton College of Engineering and Technology Excellence in Scholarship Award, and the BYU Karl G. Maeser Research and Creative Arts Award. He has served the Antennas and Propagation Society as a member and co-chair of the Education Committee and is Senior Associate Editor of the IEEE Transactions on Antennas and Propagation and Antennas. Dr. Warnick has been a member of the Technical Program Committee for the International Symposium on Antennas and Propagation for several years and served as Technical Program Co-Chair for the Symposium in 2007.

Agenda

- The state of academic scholarship and publications
- What is the true role of the pursuit of excellence in professional development?
- How to find the right focus among competing aspects of professional development?
- Importance of trustworthiness, collegiality, and engagement with a community of scholars
- The changing roles of academic publishing and professional societies

Scholarship and Publication

Consider the state of today's scientific literature
(journals, magazines, books, archives, online resources)

Does it look like this?

Or perhaps the literature is beginning to look more like this:

In a world of ever-expanding research enterprises at institutions around the world, academic literature seems to be growing without bound.

To maintain high quality, valuable information exchange, perhaps it would be healthy to reevaluate the rewards, metrics, and motivations for academic work and professional development for university faculty.

Looking into the future…

- "It's tough to make predictions, especially about the future" (Yogi Berra)

- Let's keep things simple and clear

- As the academic literature and body of knowledge expand, there is more to teach to students to bring them to the state of the art

- Students must spend more time learning, before they can do cutting edge research

- Efficient and effective teaching become more important

- The incremental value of one more publication may be decreasing

- The academic literature may be becoming less relevant, less coherent, less accessible, more dilute. With the proliferation of open access journals, pay to publish venues, and the expansion of the publishing enterprise generally, the academic literature is in danger of becoming disconnected, cluttered, and unmanageable

Why we should reflect on reward structures in academia

- Faculty at most institutions have powerful incentives to write, to publish, to create output
- There is little motivation to read the work of other researchers
- It makes no sense to have an academic community of "output only" scholars
- How can we change incentives and attitudes to motivate scholars to read papers as well as write them, to publish high quality work, and to maintain the health of the academic enterprise?

How to change the game of academia?

- As the body of collective knowledge expands, the give and take of academic engagement, the call and response and bidirectional flow of ideas, and engagement with academic communities become increasingly important

- Most scholarship today is incremental, and finds its greatest value in the learning experience that the research provides for students and in paving the way so that breakthroughs can be recognized

- Refocus on student-centric scholarship, rather than "big business" research groups

- Require a certain percentage of funding to support students

- Encourage work that synthesizes, simplifies, integrates, and combines ideas

Why change?

- The 'output' pressure leads to reduced reflection on important aspects such as academic excellence, professional development and collegiality

- This in turns may hamper healthy development of academia

- Continued reflection on aspects relevant for holistic academic excellence desired

Academic Excellence

Excellence in general

- Does external appearance always speak for quality?

Can we assess an apple just by its appearance?

What if it is spoiled inside?

Thus...

- Excellence is **NOT** external appearance
  - Deeper analysis needed; Fundamental questions to be asked
  - Content, and not cosmetics, is what decides it

- Excellence involves
  - Not being complacent
  - Raising the bar, competence, planning and implementing

- We desire, or at least *have to* desire, excellence

What it needs to excel

- To start with, *desire* to excel!

> What we think, we become
> *Lord Buddha*

- Setting high benchmarks

> The depth of water determines how tall an aquatic plant grows; zeal in the heart dictates how far man goes.
> *Thirukkural, Couplet 595*

- Reflection, strategizing and planning

- Continuous learning, and from the best!

- Giving one's best

> You must be the change you wish to see in the world
> *Mahatma Gandhi*

- Believing that one can

- Being trustworthy

Why to excel?

- Why do we undertake activity (study, work, etc.)?
  - **To find joy in engaging in the academic endeavour**
- How to be engaged?
  - With focus, commitment, intrinsic motivations
  - This results in positive engagement

> ***Nishkam karma***
> *Sanskrit phrase, meaning 'duty for duty's sake;' Central message of Bhagvad Geetha*

- Work/job satisfaction
  - Immediate gratification versus long-term fulfillment

> 'Let's walk by faith rather than by sight'
> *Bible*

- Peace of mind

- Helps demonstrate responsibility, genuineness and thus builds support

- Enables joy and positive feeling about life

Understanding academic excellence

- To reflect on academic excellence, we need to consider

  - Purpose of education

  - Nature of academia

  - Components of faculty engagement

What education is NOT merely for

- Making students storehouses of knowledge
  - Knowledge:
    - is available in the library and in the web pages!
    - is vast and on the move!

- Helping them specialize in a narrow field
  - They may not always find an employer!

- Awarding of *paper* degrees

Desired educational outcomes

- Strong foundation in basic science and engineering

- Problem solving and design skills

- Creativity

- Consideration for impact of technology on society

- Personal growth:

  - Interest in reflection and life-long learning

  - Interest in arts & humanities for holistic approach

  - Habit of planning and completing tasks

  - Integrity and honesty

  - Expressiveness

Nature of academic institutions

- Colleges are social institutions dealing with young, fresh people

- They need to offer "protected environments which are tolerant of mistakes and see inappropriate expression as a teachable moment that allows students to learn and grow in their ideas." – Jerry Gaff, 2010 [1]

- Lecturers are at their heart and therefore they have responsibilities that extend beyond technical domain

- Thus there is an unwritten "social contract" between teachers/institutions and society!

Published values of some Universities

- The goals and values of several universities around the world reflect the need for fostering holistic development.
- Some examples (as on June 19, 2018):
    - Integrity, collegiality, civility, freedom, diversity, reflection (Shiv Nadar University, India)
    - Intellectual and spiritual strengthening, character building, life-long learning (Brigham Young University, USA)
    - Integrity, transparency, empathy (IIT Bombay, India)
    - Freedom of thought and expression, questioning spirit, life-long learning (University of Cambridge, UK)

Components of academic engagement

- Teaching and learning

- Scholarship, research, consultancy and publishing

- Mentoring students/colleagues

- Management/Administration

- Outreach

Desired faculty attributes

- Learning, reflection, scholarship, creativity

- Love of ideas (life-long learning)

- Effective communication, confidence

- Organizing skills

- Ethics, integrity and honesty

  - Professional development programmes (ought to) facilitate the continuous enhancement of all these attributes

Faculty development requirements

- Attending high-quality technical/professional programmes

- Quality publications and presentations

- Integrity, honesty, trustworthiness

- Professional network

- Organizing high-quality programmes

- Professional society membership helps with all these

Leadership in a volunteer organization

- Follow this simple formula:

  - **Thank:** When we first respect and appreciate the work of volunteers, they are more receptive to our input. A little effort to show that we value our peers goes a long way.

  - **Ask:** Instead of criticizing volunteers and telling them what to do, it is more effective to ask how things are going and seek feedback first. Ask what resources the volunteer needs to do his or her job.

  - **Inform:** Once a strong foundation and a positive working relationship is established, then it is much easier to inform the volunteer of changes that need to be made or corrections to the programs that are required. If a volunteer must be replaced, they are usually happy to move on to other opportunities, if they know that their work has been valued and their input is listened to by the leadership.

Trust and excellence

- Excellence and trustworthiness go hand-in-hand

- Implies satisfaction is never detachable from trust!

- So trusting and being trustworthy are fundamental requirements

    - Integrity and honesty

- Meaning for academic community
    - Doing away with 'tick-box' culture
    - Freedom, responsibility, autonomy

Effective communication

- Oral and written

- Importance:
  - Conceiving an idea is of course important
  - But of equal (more?) importance is the ability to put the ideas into appropriate plan

- One communicates **his/her plan** and so the quality of plan determines the quality of communication!

- Effective emails, proposals

The individual and the institution

- Individual excellence leads to institutional excellence

- Collective excellence needs a culture of appreciating diversity:
  - Differences/diversity of ideas enriches communities, organizations and nations
  - Disagreement not to lead to disagreeableness
  - Cultivation of the quality of openness of thought
  - This quality needs to be at the heart of educational process

- Our actions and work within and without the institution affect individual, institutional and community image

Evaluation and Metrics for Academics

Difficulties with current accountability system

- Challenges with empirical measurement of faculty attributes
- Too much documentation
- Faculty may be spending more time in documenting than in their actual work!
- Distrusting rather than trusting approach

Why an alternative approach may be desired

- Faculty integrity needed to meet educational objectives

- Excessive monitoring upsets necessary ambience and may lead to de-motivation

- Distrusting approach encourages doing things to meet requirements than in pursuit of excellence

- Faculty without motivation and enthusiasm cannot work towards meeting educational objectives

Ideas for an alternative accountability system

- Importance to how a job is done rather than to mere outcomes
- A trusting rather than distrusting approach
- Feedback from academic and non-academic colleagues on the collegiality
- Focus on development rather than on assessment/judgement
- Requirement of minimal documentation
- Student evaluation of teaching to include question on whether the teacher is inspiring and sets an example
- Feedback of professional colleagues

Concluding comments

- Academic work should value student achievement and engagement with the community
- Excellence is a journey, not an end
- Openness, Perseverance, Expressiveness, Life-long learning, Trust:
  - Professionalism
- Academic excellence requires a good mix of these aspects
- Involves individual, institutional and community pride

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Thank You!